

## INFORMATION DISCLOSURE CITATION

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ATTY DOCKET NO.  
SCP- 5020SERIAL NO.  
09/905,025

Tamar Elsayy et al.

FILING

Julv. 13, 2001

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1746

SEP 24 2001

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
ZE	A	2,959,151	11/8/1960	J. C. Ehrlich	118	429	4/8/1954
	B	2,961,354	11/22/1960	H. M. Cleveland	134	1	10/28/1958
	C	2,967,120	1/3/1961	J. L. Chaney	124	22	11/7/1956
	D	3,607,549	9/21/1971	E. J. Bielefeld Jr.	156	345	10/9/1968
	E	3,632,462	1/4/1972	C. A. Barrington et al.	156	345	2/7/1969
	F	3,760,822	9/25/1973	Evans	134	99	3/22/1972
	G	3,813,311	5/28/1974	Beck et al.	156	17	1/24/1973
	H	3,871,914	3/18/1975	Goffredo et al.	134	109	10/18/1971
	I	3,923,072	12/2/1975	Beaud	134	99	9/5/1974
	J	3,957,531	5/18/1976	Tipping et al.	134	11	3/14/1975
ZE	K	3,964,957	6/22/1976	Walsh	156	345	9/30/1974

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
ZE	L	JP9162154	6/20/1997	JAPAN	21	304		✓
	M	JP08061846	8/3/1996	JAPAN				✓
	N	EP 0907200A2	7/4/1999	EUROPE	21	00	✓	
	O	EP 0784336A2	7/16/1997	EUROPE	21	00	✓	
ZE	P	4-151835	5/25/1992	JAPAN	21	304		✓

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	Q	Klaus Wolke. "Marangoni Wafer Drying Avoids Disadvantages" Solid State Technology. August 1996
ZE	R	G. Zou et al. "Elimination of HF-last Cleaning Related CoSi2 Defects Formation" Proceedings of the Second International Symposium on Ultra-Clean Processing of Silicon Surfaces. (UCPSS '94) 1994

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# INFORMATION DISCLOSURE SECTION

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
ZE	S	3,977,926	8/31/1976	Johnson, Jr. et al.	156	17	12/20/1974
	T	4,017,343	4/12/1977	Haas	156	642	7/15/1975
	U	4,039,357	8/2/1977	Bachmann et al.	148	175	8/27/1976
	V	4,111,715	9/5/1978	Sprengling et al.	134	10	3/15/1976
	W	4,159,917	7/3/1979	Gluck	148	1.5	5/27/1977
	X	4,235,650	11/25/1980	Chang et al.	148	189	9/5/1978
	Y	4,282,825	8/11/1981	Nagatomo et al.	118	58	7/26/1979
	Z	4,318,749	3/9/1982	Mayer	134	25.4	6/23/1980
	AA	4,328,081	5/4/1982	Fazlin	204	192	11/4/1980
	BB	4,358,470	11/9/1982	Rasmussen	427	4	12/30/1980
ZE	CC	4,368,757	1/18/1983	Finger	137	565	11/29/1980

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
ZE	DD	4-83340	3/17/1992	JAPAN	21	304		✓
	EE	4-251930	9/8/1992	JAPAN	21	304		✓
	FF	4-323824	11/13/1992	JAPAN	21	304		✓
	GG	5-13397	1/22/1993	JAPAN	21	304		✓
ZE	HH	5-136116	6/1/1993	JAPAN	21	304		✓

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	II	Sean O'Brien et al. "The Impact of Integrated Pre-Cleans on Gate Oxide Integrity". Proceedings of the Second International Symposium on Ultra-Clean Processing of Silicon Surfaces. (UCPSS '94) 1994
ZE	JJ	R. Schild et al. "Marangoni Drying: A New Concept for Drying Silicon Wafers". Proceedings of the Second International Symposium on Ultra-Clean Processing of Silicon Surfaces. (UCPSS '94) 1994

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ZE	KK	4,383,884	5/17/1983	Romus	156	642	6/1/1981
	LL	4,408,960	10/11/1983	Allen	417	54	9/11/1981
	MM	4,426,246	1/17/1984	Kravitz et al.	156	643	7/26/1982
	NN	4,479,849	10/30/1984	Frantzen	156	640	5/27/1983
	OO	4,519,846	5/28/1985	Aigo	134	15	3/8/1984
	PP	4,520,834	6/4/1985	DiCicco	134	63	11/8/1983
	QQ	4,577,650	3/25/1986	McConnell	134	59	5/21/1984
	RR	4,589,926	5/20/1986	Holmstrand	134	6	5/23/1984
	SS	4,633,893	1/6/1987	McConnell et al.	134	95	6/24/1985
	TT	4,653,636	3/31/1987	Armstrong	206	334	5/14/1985
ZE	UU	4,736,758	4/12/1988	Kusuhara	134	66	1/21/1986

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
ZE	VV	5-283386	10/29/1993	JAPAN	21	304		✓
	WW	5-283391	10/29/1993	JAPAN	21	304		✓
	XX	5-326464	12/10/1993	JAPAN	21	302		✓
	YY	06-163501	6/10/1994	JAPAN	21	304		✓
ZE		57-210633	12/24/1982	JAPAN	21	306	✓	

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	ZZ	A. F. M. Leenaars et al. "Marangoni Drying: A New Extremely Clean Drying Process" Langmuir. The ACS Journal of Surfaces and Colloids. November Volume 6, Number 11 1990
ZE	AI	L. Li et al. "Improvement and Evaluation of Drying Techniques for HF-last Wafer Cleaning" Proceedings of the Second International Symposium on Ultra-Clean Processing of Silicon Surfaces. (UCPSS '94) 1994

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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	PATENT & TRADEMARK OFFICE	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
ZE	A2	4,778,532	10/18/1988	McConnell et al.	134	10	8/13/1985
	A3	4,911,761	3/27/1990	McConnell et al.	134	11	4/20/1988
	A4	4,960,141	10/2/1990	Lenck et al.	134	61	9/27/1988
	A5	5,054,210	10/8/1991	Schumacher et al.	34	78	2/23/1990
	A6	5,089,084	2/18/1992	Chabra et al.	156	646	12/3/1990
	A7	5,092,011	3/3/1992	Gommori et al.	15	88.2	4/12/1991
	A8	5,115,576	5/26/1992	Roberson, Jr. et al.	34	15	9/26/1990
	A9	5,143,103	9/1/1992	Basso et al.	134	98.1	1/4/1991
	A10	5,188,136	2/23/1993	Kumagai	134	066	11/15/1991
	A11	5,226,242	7/13/1993	Schwenkler	34	78	2/18/1992
ZE	A12	5,265,632	11/30/1993	Nishi	134	133	5/8/1992

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
ZE	A13	245639	1987	JAPAN			✓	
	A14	111987	1988	JAPAN			✓	
	A15	Showa 46-25833	12/5/1972	JAPAN			✓	
	A16	62-198126	9/1/1987	JAPAN			✓	
ZE	A17	EP 0784336A2	7/16/1997	EUROPE	21	00	✓	

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	A18	D. Fullarton et al: "Condensation of Isopropanol-Steam Mixtures" International Chemical Engineering Vol. 27, No. 4, October 1987
ZE	A19	D. Fullarton et al: "Condensation of Isopropanol-Steam Mixtures" International Chemical Engineering Vol. 27, No. 4, October 1987

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ZE	A20 5,271,774	12/21/1993	Leenaars et al.	134	31	3/5/1992
	A21 5,331,987	7/26/1994	Hayashi et al.	134	102.1	11/16/1992
	A22 5,383,482	1/24/1995	Yamada et al.	134	66	11/2/1992
	A23 5,421,905	6/6/1995	Ueno et al.	134	25.4	10/13/1993
	A24 5,437,710	8/1/1995	Grant et al.	95	12	12/14/1994
	A25 5,464,480	11/7/1995	Matthews	134	1.3	7/16/1993
	A26 5,551,459	9/3/1996	Ohmori et al.	134	61	7/17/1995
	A27 5,569,330	10/29/1996	Schild et al.	134	1	5/17/1994
	A28 5,660,642	8/26/1997	Britten	134	30	5/26/1995
	A29 5,725,753	3/10/1998	Harada et al.	205	746	4/26/1996
ZE	A30 5,782,990	7/21/1998	Murakami et al.	134	26	1/27/1997

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	A31	"The IPA Rinser-Dryer with Advanced Particle Removal" CFM Technologies, Inc. Vapor-Flow IPA Rinser Dryer Date Unknown.
ZE	A32	"Marangoni Dryer-The Revolutionary super clean and cost effective alternative" Steag Microtech. Date Unknown

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ZE	A33	5,752,532	Schwenkler et al.	134	102.3	9/26/1996
	A34	5,788,448	Wakamori et al.	414	222	12/6/1995
	A35	5,807,439	Akatsu et al.	134	32	9/29/1997
	A36	5,813,819	Ohsawa et al.	414	416	4/7/1997
	A37	5,817,185	Shindo et al.	134	25.4	11/21/1997
	A38	5,826,129	Hasebe et al.	396	611	6/29/1995
	A39	6,004,399	Wong et al.	134	2	1/15/1997
	A40	6,029,371	Kamikawa et al.	34	516	9/16/1998
ZE	A41	6,045,621	Puri et al.	134	2	10/26/1998

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	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	A42	Anonymous, "Drying of Substrates after Treatment in a Liquid". Research Disclosure 32778 Jul 1991
ZE	A43	Wolke et al. "Marangoni wafer drying avoids disadvantages". Solid State Tech. pp 87-90 August 1996.

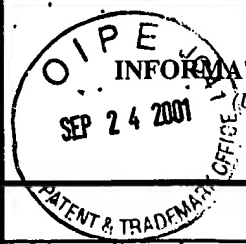
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
ZE	A44	5,226,242	7/13/1993	Schwenkler	134	105	
	A45	5,569,330	10/29/1996	Schild et al.	134	1	
	A46	5,571,337	11/5/1996	Mohindra et al.	134	25.4	
	A47	5,634,978	6/3/1997	Mohindra et al.	134	2	
	A48	5,685,327	11/11/1997	Mohindra et al.	134	95.2	
	A49	5,752,532	5/19/1998	Schwenkler	134	102.3	
	A50	5,772,784	6/30/1998	Mohindra et al.	134	21	
	A51	5,873,947	2/23/1999	Mohindra et al.	134	18	
	A52	5,958,146	9/28/1999	Mohindra et al.	134	2	
	A53	5,849,104	12/15/1998	Mohindra et al.	134	25.4	
ZE	A54	5,868,150	2/9/1999	Mohindra et al.	134	135	

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	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO
ZE	A55	EP 0 782 889 A2 ✓	07/09/97	EP	B08B	3/04	✓	

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ZE	A56	Marra, J., "Ultraclean Marangoni Drying" Particles in Gases and Liquids 3: Detection, Characterization and Control, Plenum Press, NY 1993
ZE	A57	O'Brien, S.B.G.M. "On Marangoni Drying" J. Fluid Mech. vol. 254, pp. 649-670 1993:

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Huethorst, J.A.M. et al. "Motion of Marangoni-Contracted Water Drops Across Inclined Hydrophilic Surfaces" Langmuir(7) pp. 2756-2763 1991.

Koppenbrink et al. Particle reduction on silicon wafers as a result of isopropil alcohol vapor displacement drying after wet processing, in Particles on Surfaces 2, editor K.L. Mittal, Plenum Press, 1989.

"Effects of Drying Methods and Wettability of Silicon on the Formation of Water Marks in Semiconductor Processing" Park et al., pp.2028-2031, Journal Electrochemical Society, vol. 142, no. 6, June 1995

D.J. Riley and R. G. Carbonell. "The Deposition of Contaminants from Deionized Water onto Hydrophobic Silicon Wafers", Journal of the EIS, pp. 28-34, Nov./Dec. 1991

N.D. Casper and B.W. Soren, "Semiconductor Yield Enhancement through Particle Control", Emerging Semiconductor Technology, pp. 423-435.

M. Itano, F.W. Kern, Jr., R.W. Rosenberg, M. Miyashita, I. Kawanabe, and T. Ohmi, "Particle Deposition and Removal in Wet-Cleaning Processes for ULSI Manufacturing", IEEE Trans. on Semiconductor Manufacturing vol. 5, No. 2, pp. 121-127. May 1992

Y. Yagi, T. Imoaka, Y. Kasama and T. Ohmi, "Advanced Ultrapure Water Systems with Low Dissolved Oxygen for Native Oxide Free Water Processing", IEEE Trans. On Semiconductor Manufacturing, vol. 5, No. 2, pp. 121-127. May 1992

H.G. Parks J.F. O'Hanlon and F. Shadman, "Research Accomplishments at the University of Arizona Sematech Center of Excellence of Contamination/Defect Assessment and Control", IEEE Trans. on Semiconductor Manufacturing, vol. 6, No. 2 pp.134-142, May 1993

C. McConnell, "Examining the Effects of Water Surface Chemistry on Particle Removal Using Direct-Displacement Isopropyl Alcohol Drying", Micro-Contamination, Feb. 1991.

C. McConnell, "Examining the Effects of Water Surface Chemistry on Particle Removal Using Direct-Displacement Isopropyl Alcohol Drying", Micro-Contamination, Feb. 1991

M. B. Olesen, "A Comparative Evaluation of the Spin Rinser/Dryer with the IPA Vapor Isodry Technique", Proceedings - Institute of Environmental Sciences. pp. 229-241, 1990.

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## FOREIGN PATENT DOCUMENTS

[illegible]

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ZE	A70	G.D. Moss et al. "Capillary Drying: Particle-Free Wet Process Drying?" Date Unknown.

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